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(12) UK Patent Application (19) GB (11) 2 125 370 A

(21) Application No 8321034

(22) Date of filing 4 Aug 1983

(30) Priority data

(31) 8222919

8312062

(32) 9 Aug 1982

3 May 1983

(33) United Kingdom (GB)

(43) Application published

7 Mar 1984

(51) INT CL³

B65H 75/06 75/30

(52) Domestic classification

B8M 101 105 18E 2T 811

GJ HB

U1S 1570 1571 88M

(56) Documents cited

GB 1528704

(58) Field of search

B8M

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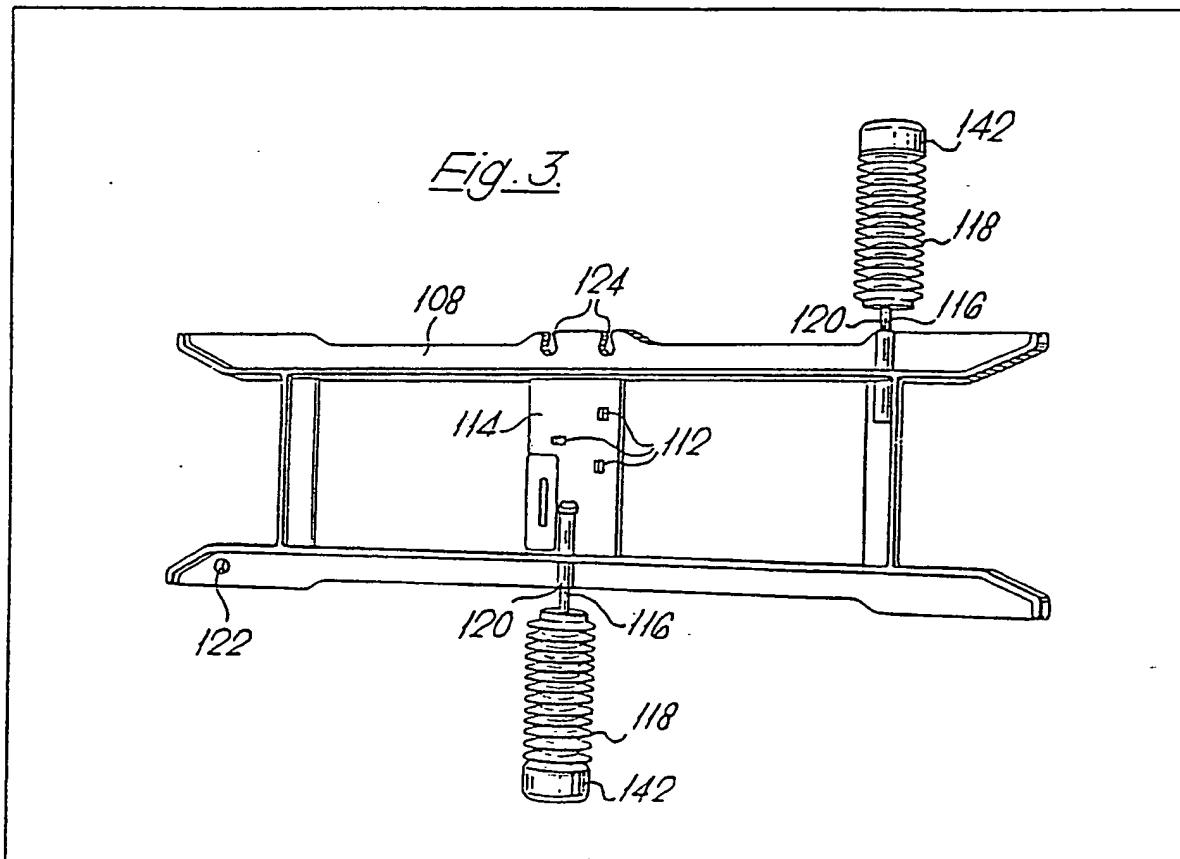
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(54) Reel for cable or the like

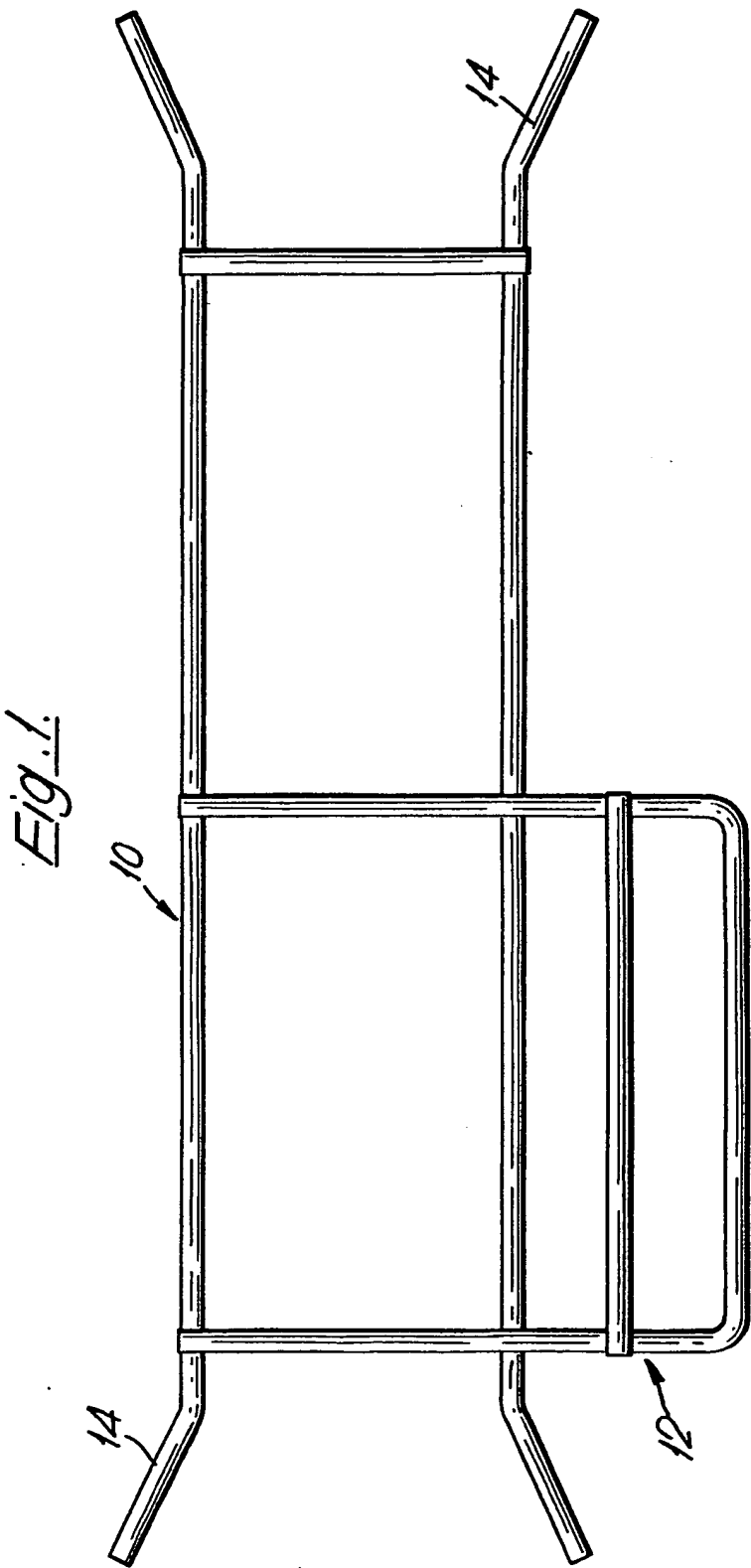
(57) A reel for electrical cable, twine
or the like has a generally rectangular
flat winding frame (108), the cable
being wound around opposite short
ends, and two or possibly three,

rotatably mounted, handles, 118
extending from opposite long sides of
the frame and spaced apart
lengthwise of the frame so that by
holding two handles the frame can be
rotated to wind or unwind the cable.
For use with electrical cable a cable
plug holder 112 is preferably provided
on a central web 114 so that the cable
must be substantially unwound to
obtain access to the plug. A cable
holding notch 124 may be provided in
one side of the frame and/or the web
114, a hole 122 for hanging purposes
or a hanging hook also being
preferably provided.

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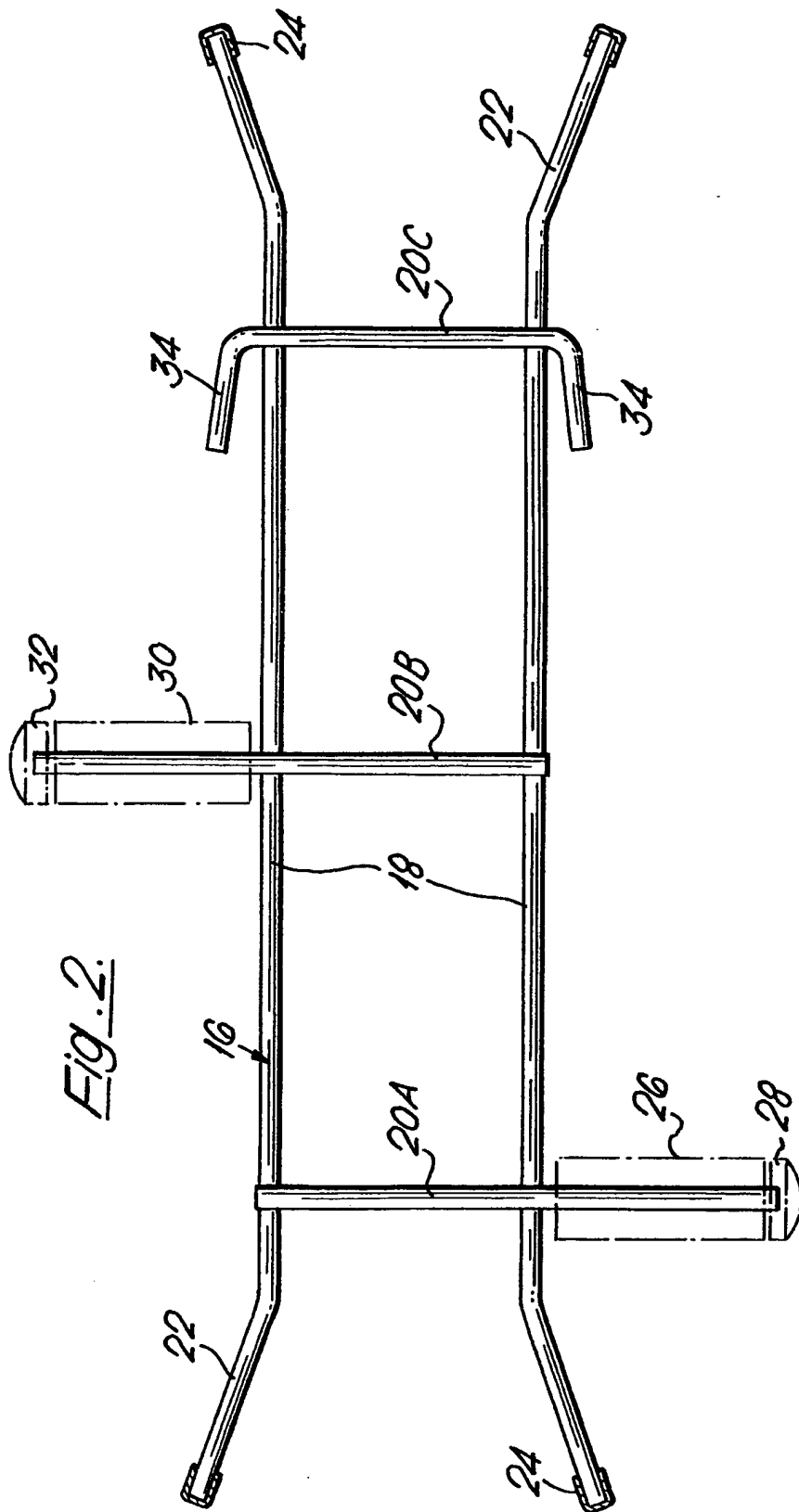


Fig. 2A.



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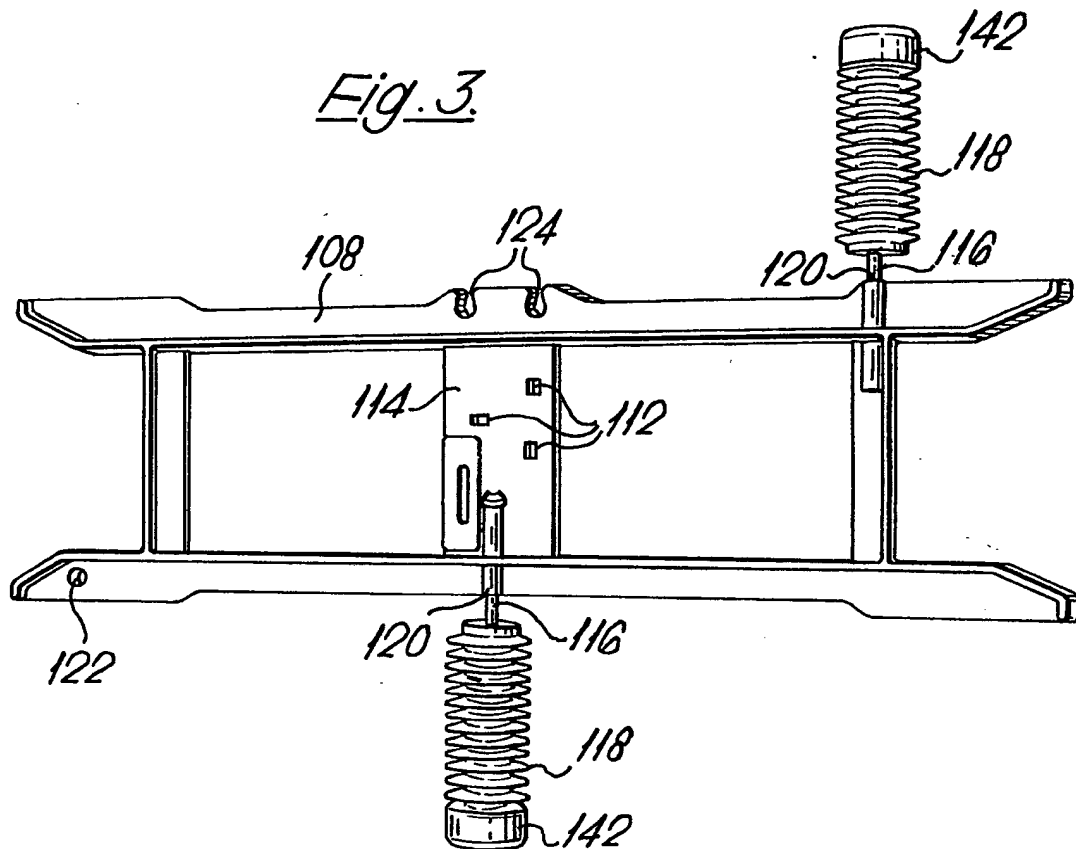
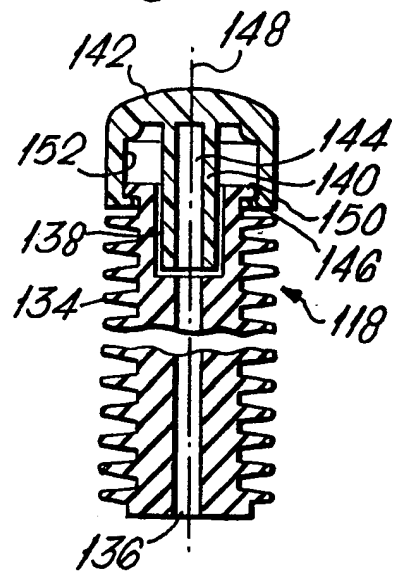
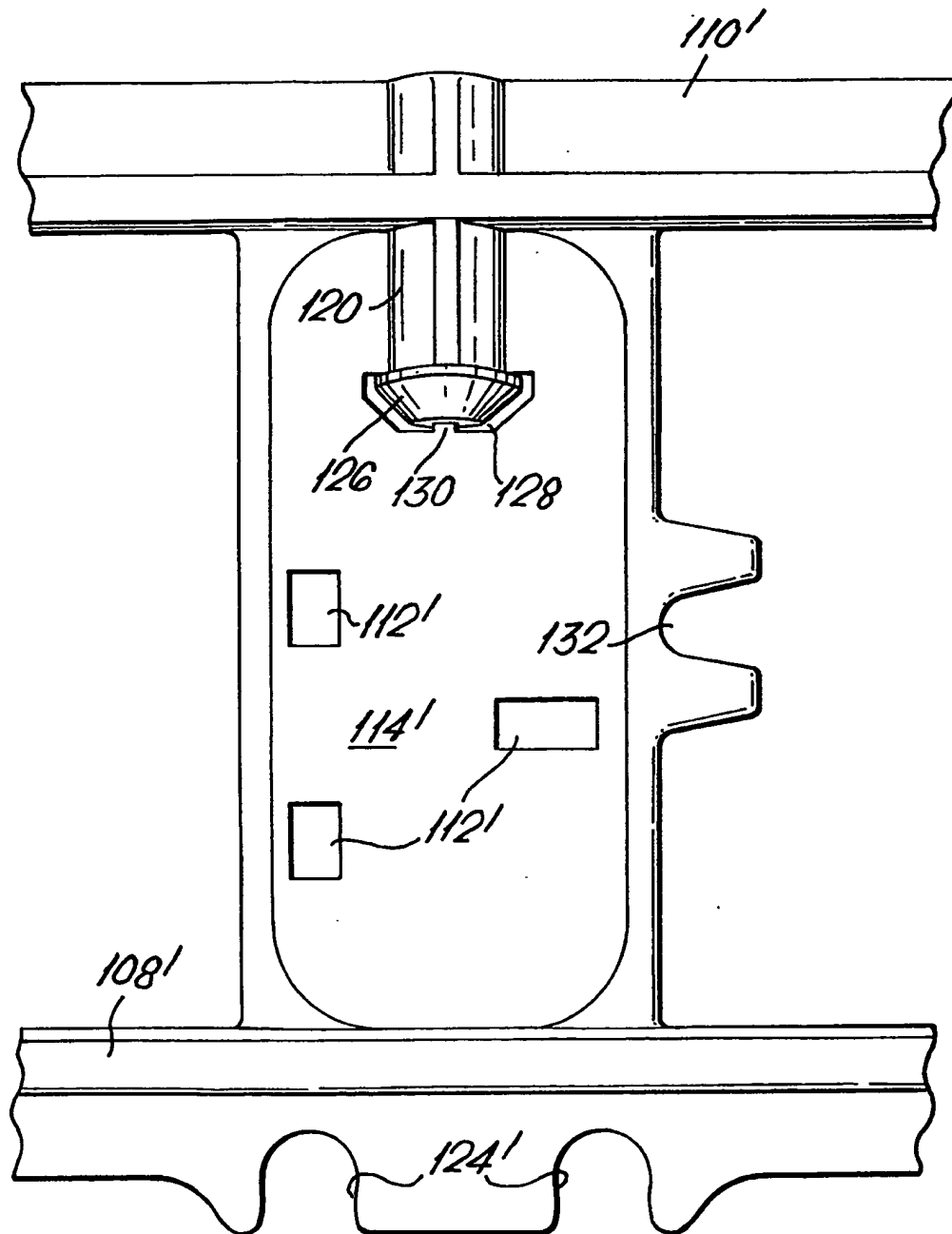
Fig. 3.Fig. 5.

Fig. 4.

SPECIFICATION

Winder for cable or the like

The present invention relates to a winder or reel for electric cables, twine or the like of the kind

- 5 having a generally rectangular winding frame around the two opposite ends of which the cable, twine or the like (hereafter referred to for the convenience as "the cable") can be manually wound so as to lie generally flat on either side of the frame.

- 10 A typical example of a known winder of this kind is illustrated in Figure 1 of the accompanying drawings. The winding frame is generally designated 10 and is formed, for example, of moulded plastics material or of length of wire welded together at their intersections. A carrying handle 12 is provided on one side of the frame, whilst outwardly flared extension arms 14 from opposite ends of the frame 10 serve to guide the cable onto or off the frame during the winding or unwinding operation and to maintain the wound cable on the frame.

- Winders such as that illustrated in Figure 1 have found widespread use in homes and workshops and have the advantage as compared with winders or reels in which the cable or the like is wound around a rotatable drum of occupying a smaller space, even when quite long lengths of cable are wound therearound. This is often an important consideration particularly for domestic use. On the other hand, the known winders are somewhat cumbersome to use, and in practice it is found that there is a tendency for the cable or the like to become twisted as it is wound onto or unwound from the frame.

The present invention seeks to provide an improved winder which is more easily manipulatable and with which there is therefore a reduced risk of cable twisting in use.

- 40 The winder of the present invention, like that of the prior art, has a generally rectangular winding frame which is preferably formed of plastics-coated wire members. Again like the known form of winder, outwardly flared arms may extend from the two opposite ends of the frame to facilitate winding or unwinding of the cable and to help maintain wound cable on the frame. In the winder of the present invention, on the other hand, the winding frame carries at least two rotatable handles, one on each of the two opposite sides of the winding frame and spaced apart lengthwise of the winding frame.

- In order to use the winder of the present invention, the user grasps a handle on each side of the winding frame and rotates the frame about an axis extending laterally across the frame, either towards or away from the user, to wind-up or unwind the cable, as required. Cable can thus be wound-up or unwound from the winding frame in a relatively smooth, and fast, way and there is therefore a lesser tendency for the cable to become twisted.

In a preferred embodiment of the invention, one of the rotatable handles is positioned at or

- 65 adjacent an end of the winding frame on one side thereof, and a second rotatable handle is positioned, on the opposite side of the frame, at or near the mid-point of that side. If desired, a third rotatable handle may be positioned at or adjacent 70 the other end of the frame, on the same side thereof as the intermediately positioned handle, thereby giving the user two alternative pairs of handles to grasp during winding and unwinding.

- When using the winder of the present invention 75 for electrical cable it is desirable that the cable should first be fully unwound from the winder in order to minimise the risk of overheating in the cable, particularly if it is to carry a heavy current. Whilst it is normal for cable winders to carry a prominent warning to this effect, nevertheless some users still fail to comply with this precautionary advice when for a particular purpose they need only unwind a part of the length of cable carried by the winder.

- 85 Accordingly in a further embodiment of the invention a plug holding means is carried by the frame between the opposite sides thereof for releasably holding an electrical plug (which is fitted to one end of the electrical cable) when the cable is not in use.

- 90 With this arrangement, the presence of the plug holding means encourages the user to place the plug in the holding means before winding-up the cable. Since the plug holding means are located 95 between the opposed sides of the winding frame, a plug placed therein will then lie between the lengths of the wound cable, and will be inaccessible, or accessible only with difficulty, until the cable has again been substantially fully unwound.

- 100 The plug holding means also serves to reduce the risk of accidental damage to the electrical plug which arises when conventional winders, in which the end of the cable with the plug is left free, is carried from place to place.

- 105 In a preferred embodiment of the invention, the plug holding means comprise openings which are formed in a cross-member extending between the opposed sides of the generally rectangular winding frame and which are shaped to receive the pins of the electrical plug.

- 110 Three embodiments of a winder of the invention will now be described by way of example with reference to the accompanying drawings in which:—

- 115 Figure 1 is a plan view of a known winder, Figure 2 is a plan view of a winder according to a first embodiment of the invention, Figure 2a is a side view of the winder of Figure 120 2,

- Figure 3 is a perspective view from the top of a winder according to a second embodiment of the invention,

- Figure 4 is a plan view of a central portion of a winder similar to the winder of Figure 3 according to a third embodiment of the invention, and

- Figure 5 shows a detail of the handle and retaining cap of the second embodiment shown in Figure 3.

As shown in Figure 2 a winding frame 16 is formed of two longer, parallel, lengths of wire 18 forming side elements across which are welded the shorter lengths of wire 20A, 20B and 20C at spaced intervals to form a rigid rectangular frame.

The lengths 20A, 20B and 20C form cross wire elements. Beyond the two end cross wire elements 20A, 20C, the side elements 18 are bent away from the longitudinal axis of the frame, thereby to form at each end of the frame outwardly flared arms 22. Caps 24 of plastics material are press-fitted onto the free ends of the arms 22 to protect the user against rough or sharp edges formed by cutting of the side elements 18.

The cross element 20A at one end of the frame (the left-hand end as shown) extends beyond the frame to form a spindle for a freely rotatable winding handle 26 which is held on the spindle by an end-cap 28 press-fitted onto the end of the cross element. The intermediate cross element 20B, which preferably is located midway between the two end cross elements, similarly extends beyond the frame 16 but on the opposite side to the left hand end element, to form a spindle for a second freely-rotatable winding handle 30 and its retaining cap 32. In the illustrated embodiment, the third ie right hand end, cross element 20C projects beyond both sides of the frame and the projections are bent back towards the sides of the frame to form hooks 34 for retaining the free ends of the cable or the like, and by means of which the winder may be hung on a wall when not in use. In this embodiment, therefore, there are only two winding handles.

In an alternative embodiment, not illustrated, a third winding handle may be provided by extending the right hand cross element 20C beyond the frame on the same side as the spindle formed by the intermediate cross element 20B, to form a third spindle for receiving a freely-rotatable handle similar to handles 26 and 30.

Preferably, all the frame elements are coated with a suitable plastics material.

The size of the winding frame 16 obviously will depend on the length of cable or the like to be wound thereon. We have found that a winding frame of about 27 x 9 cm will easily carry a length of about 25 m of electric cable such as is used for electric lawn mowers.

In Figure 3 a winder similar in principle to that shown in Figure 2 is shown and will therefore not be described here in detail. However the winding frame 110 of the present embodiment is molded from a suitable plastics material instead of being constructed from wire frame elements welded together.

Holding means for a standard 3-pin, 13-amp electrical plug fitted to one end of an electric cable to be wound on the winder comprise three through-openings 112 of a shape and position corresponding to the plug pins formed in a cross-member 114 extending between the opposite sides of the frame 110 about mid-way along its length.

In the illustrated embodiment, the spindles 116

for the two handles 118 are removably received as a friction fit in sockets 120 molded in the frame 110, rather than being formed integrally with the frame as shown in Figure 2.

A hole 122 is provided at one end of the frame for hanging the winder on a wall hook or the like when not in use.

Shaped recesses 124 formed in one edge of the frame 110 adjacent the pin-openings 112 serve to retain the free end of a cable wound on the winder.

The provision in accordance with the present invention of the electric socket-like openings 112 in the cross-member 114 will encourage the user to store the plug fitted at the end of the cable on the cross-member 114 when not in use. The cable when wound on the winder will then enclose the plug, and the cable will have to be at least substantially fully unwound before the plug can again be used.

Of course, the openings 112 for the pins of the plug can be shaped and positioned to suit other types of electrical plug, e.g. plus with two, round, pins.

Figure 4 of the accompanying drawings illustrates a detail of a modified embodiment of the winder of Figure 3. According to this modified embodiment, a starlock washer 126 is positioned adjacent the inner, and in this embodiment, open end of each socket 120 for the handle spindles 116 (not shown in Figure 4), so as to positively grip the free end of the spindle when it is inserted into the socket. This arrangement provides a more secure fixing for the handles which otherwise could work loose if only a frictional fitting of their spindles 116 in the sockets 120 was to be relied upon. Each starlock washer 126 is press-fitted into a corresponding recess 128 molded into the appropriate, in this case central, cross-member 114' of the frame. An integrally molded lug 130 serves to retain the washer 126 in the recess 128.

As will be appreciated, the starlock washer 126 shown in Figure 4 could be replaced by other means serving to positively hold the handle spindles 118 in their sockets. The spindles 118 may each be formed with a head to retain a simply roller type handle.

Figure 4 also illustrates the provision of a further, integrally molded, shaped recess 132 for the electric cable on one side of the cross-member 114'.

Figure 5 shows in more detail a handle 118 for the embodiment of Figure 3 and which is also suitable for the first embodiment shown in Figure 2. The handle comprises a rotatable gripping portion 134 formed with a central hole 136 of a size slightly larger, that is with a running fit, than spindle 116 (not shown in Figure 5) and a cap location enlargement hole 138 adapted to receive also with a running fit a stem 140 of end cap 142. Stem 140 has a central hole 144 which is dimensioned to fit firmly and fixedly to the end of spindle 116. The end cap 142 is thus held on to the end of spindle 116. A rim projection 146 of cap 142 extending towards the handle axis 148

engages over an outwardly extending rim 150 of gripping portion 134. The fit of rim 150 with the inside wall 152 of cap 142 is such that portion 134 can easily rotate with respect to the cap 142 which is fixed to spindle 116.

It will be appreciated that the winders of the present invention are relatively cheap to make and whilst keeping the space-saving advantage of known frame winders, in use they have at least some of the operating advantages of drum winders.

CLAIMS

1. A winder for cable or the like, comprising a generally rectangular winding frame with outwardly flared arms extending from two opposite ends of the frame, the frame carrying at least two rotatable handles one on each of the two opposed sides of the frame and spaced apart lengthwise of the frame.

2. A winder according to Claim 1 wherein a first of the rotatable handles is positioned at or adjacent the end of the frame on one side thereof and a second rotatable handle is positioned on the opposite side of the frame at or near the mid point of that side.

3. A winder as claimed in Claim 2 wherein a third rotatable handle is positioned at or adjacent the other end of the frame to the first handle, on the same side as the second handle.

4. A winder as claimed in any one of Claims 1 to 3 wherein each flared arm is provided with a cap fitted onto its extremity.

5. A winder as claimed in any one of Claims 1 to 4 wherein the ends of the frame around which

the cable or the like is to be wound is formed as a wire like element fixed to the two opposed sides of the frame, at least one of the end elements extending beyond the frame sides and bent towards the centre of the frame to form a hook.

6. A winder as claimed in any one of Claims 1 to 5 wherein at least one of the ends of the frame around which the cable or the like is to be wound extend outwardly beyond a side of the frame to form a spindle for one or each end handle.

7. A winder as claimed in any one of Claims 1 to 3 for use with electrical cable wherein a plug holding means is carried by the frame between the opposite sides thereof.

8. A winder as claimed in Claim 7 wherein the frame is formed from a moulding, the plug holding means being formed in a web of the moulding, preferably centrally of the frame, holes being formed in the web to receive the pins of the plug.

9. A winder as claimed in Claim 7 or 8 wherein at least one cable holding notch is provided on one of the sides of the frame and/or the web.

10. A winder for cable or the like substantially as described with reference to Figures 2 and 2A of the accompanying drawings.

11. A winder for cable or the like substantially as described with reference to Figure 3 of the accompanying drawings.

12. A winder for cable or the like substantially as described with reference to Figure 4 of the accompanying drawings.

13. A winder for cable or the like substantially as described and having the handle of Figure 5 of the accompanying drawings.